

Giardia and Animals

What is giardiasis?

Giardiasis is caused by infection of the small intestine by a tiny parasite (protozoan) called *Giardia intestinalis* (also known as *G. lamblia* and *G. duodenalis*). Giardiasis is a problem all over the world, particularly in resource-poor countries. In the United States, *Giardia* infection is the most common intestinal parasitic disease affecting humans. In Washington State, 400-600 *Giardia* cases are reported annually, including 100-150 cases from King County. In addition, there are many *Giardia* infections that are never diagnosed and reported.

What are the symptoms of Giardia infection?

Infected people may have no symptoms, or they may have mild to severe symptoms including watery foul-smelling diarrhea, stomach cramps, gas, fever, nausea, vomiting, and headache. Symptoms start 1 to 3 weeks after a person has become infected and they may be more severe in people who are immune compromised. *Giardia* infection can be diagnosed by examining a stool sample. Because *Giardia* cysts can be shed off and on they can be hard to find and it may be necessary to check several stool samples.

How is Giardia infection treated?

Giardiasis often clears up without treatment. People with symptoms can be treated with prescription medications such as Quinacrine hydrochloride, Metronidazole, or Furazolidone.

How is Giardia spread?

People can become infected with *Giardia* by swallowing *Giardia* cysts found in contaminated water or food. *Giardia* may also be passed by direct contact with feces from an infected person or animal. Fecal-oral spread can occur in child-care settings, households and during oral-anal sexual contact. Child-care center outbreaks have occurred among diapered children in wading pools. *Giardia* infections often increase between June and October probably due to more frequent exposure to contaminated water through swimming or camping. In King County about 20% of the reported cases are among international travelers.

It only takes a few *Giardia* cysts to cause infection and infected people or animals can shed large number of cysts in their feces for several months. The cysts are very hardy and can survive several months in cold water. Cysts can be killed by boiling, filtration or disinfection.

Can Giardia be spread from animals to people?

Giardia infects many types of animals such as cats, dogs, cows, goats, and wildlife. People are the primary source of *Giardia* infection in other people, but some human infections may be acquired from animals (zoonotic transmission).

Giardia includes several different groups called “genotypes” or “assemblages.” Most of these assemblages infect only certain hosts. For example, assemblages C and D are considered to be specific for dogs, assemblage F for cats, E for livestock, and G for rats; these assemblages do not cause disease in people.¹

On the other hand, assemblages A and B infect humans as well as many different types of animals, including dogs and cats, and can therefore be spread from animals to humans and from humans to

animals. Some genetic sub-groups of assemblages A and B appear to spread more easily between humans and animals.

Can Giardia be spread from pet dogs to people?

Studies from different areas of the world have shown wide geographical differences in infection with zoonotic types (assemblages) of *Giardia* in household dogs. Reasons for these differences are not well understood. A recent large study of *Giardia* infection in dogs from several locations in the Western United States found that 7% of healthy dogs were infected with *Giardia*.² In addition to infection with dog-specific *Giardia* types, 28% of dogs with *Giardia* were found to be infected with assemblage A and 41% with assemblage B. This is the first large scale study to show that zoonotic assemblages (A and B) occur frequently in domestic dogs and that dogs may be a potential reservoir for human *Giardia* infection. More research is needed to better understand the importance of spread of *Giardia* from dogs to people and from people to dogs.

Can Giardia be spread from wildlife to people?

The same assemblage B has been found in samples from humans, muskrats, beavers, and rabbits. This indicates that people can get infected by ingesting water contaminated by feces from infected animals.

How can Giardia infection be prevented?

- Wash hands well after using the toilet, after changing diapers, before eating or preparing food, and before and after caring for someone who is sick. **Thorough hand-washing is the best way to prevent spread of infectious diseases of the intestinal tract.**
- Clean and disinfect areas such as potty chairs, toilets, and diapering areas.
- Discourage children from putting objects in their mouths, especially when sharing toys with other children.
- Children with diarrhea should stay home from childcare and school.
- Food handlers, childcare and healthcare workers should not work when they have diarrhea.
- People with diarrhea (especially children in diapers) should not use recreational water venues.
- Shower before using recreational water venues.
- Avoid fecal exposure during sexual activity.
- Avoid eating food that may have been contaminated with feces, dirt or unclean water.
- Avoid drinking untreated water from lakes, rivers, springs, ponds, streams, or shallow wells.
- Do not use or drink poorly treated water or use ice when traveling in countries where the water supply might be unsafe.
- Wash hands after gardening.
- Wash hands after any contact with animals or their living areas.

References:

¹Ballweber LR, Xiao L, Bowman DD, Kahn G, Cama VA. Giardiasis in dogs and cats: update on epidemiology and public health significance. Trends in Parasitology 2010;26:180-189

²Covacin C, Aucoin DP, Elliot A, Thompson RCA. Genotypic characterisation of *Giardia* from domestic dogs in the USA. Veterinary Parasitology 2011;177:28-32

CDC: <http://www.cdc.gov/parasites/giardia/prevent.html>

PHSKC: <http://www.kingcounty.gov/healthservices/health/communicable/diseases/giardiasis/facts.aspx>